

CLAIMS

1. Nozzle for spraying liquid substances, dispersions, emulsions, or suspensions, for use in fluidized-bed granulating systems, comprising the following:

- the nozzle includes a cylindrical nozzle body and a nozzle mouth piece,
- the nozzle body includes a centrally arranged inner tube and an outer tube spaced apart from the inner tube,
- the inner tube is connected to a supply for a substance to be sprayed,
- the outer tube is connected to a supply for an atomizing gas or to a carrier-gas stream and forms a lance base in a bottom region, and

the inner tube (3) is mounted in a receiving block (11), which is detachably attached in a tube (10) arranged in a fixed manner on a lower region of the lance base (9) and which can be removed from the tube with the inner tube (3) and any add-on parts (6) attached to the inner tube, and an attachment device (8), which connects the nozzle detachably to a processing housing (15) of the fluidized-bed granulating system, is arranged at a lower region of the outer tube (2).

2. Nozzle according to Claim 1, wherein a seal (14) is arranged within the lance body (9) between the receiving block (11) and the inner tube (3).

3. Nozzle according to Claim 1, wherein a seal (16) is arranged between the outer tube (2) and the attachment device (8), as well as between the processing housing (15) and the attachment device (8).

4. Nozzle according to Claim 1, wherein in a region of the mouth piece (1) of the nozzle, the inner tube (3) is exchangeably connected to a liquid insert (4) using a metal seal set (5).

5. Nozzle according to Claim 1, wherein in the region of the nozzle mouth piece (1), an add-on part (6) comprising swirl bodies, swirl vanes, or a guide for guiding

compressed air and for guiding the inner tube (3) is arranged in an annular gap between the outer tube (2) and the liquid insert (4) or the inner tube (3) and is rigidly connected to the liquid insert (4) or to the outer tube (2).

6. Nozzle according to Claim 1, wherein attachment of the nozzle on the process housing (15) comprises a milk-tube union nut (7) or a tri-clamp attachment.

7. Nozzle according to Claim 1, wherein the outer tube (2) is detachably connected to the lance base (9).

8. Nozzle according to Claim 1, wherein the outer tube (3) is provided in a region of connection to the lance base (9) with an expanding diameter.

9. Nozzle according to Claim 1, wherein the receiving block (11) is connected to the tube (10) by a detachable connection.

10. Nozzle according to Claim 1, wherein the inner tube (3) can be screwed into the receiving block (11) adjustable in a longitudinal axis direction for setting at least one of a spraying angle or a spraying pattern, wherein the seal (14) is provided for equalizing an adjustment path and comprises a metal compensator or an elastic O-ring.

11. Nozzle according to Claim 1, wherein the inner tube (3) is welded to the receiving block (11).

12. Nozzle according to Claim 7, wherein the outer tube is detachably connected to the lance base with a tri-clamp attachment.

13. Nozzle according to Claim 9, wherein the receiving block is connected to the tube by a tri-clamp attachment.